Solar Arrays in small town NH will provide zero power cost and exceed the State's 25/25 renewable energy goals.

An achievable element of NH's 2014 Strategic Energy Plan.

Bill Dowey
Chairman Bristol Energy Committee

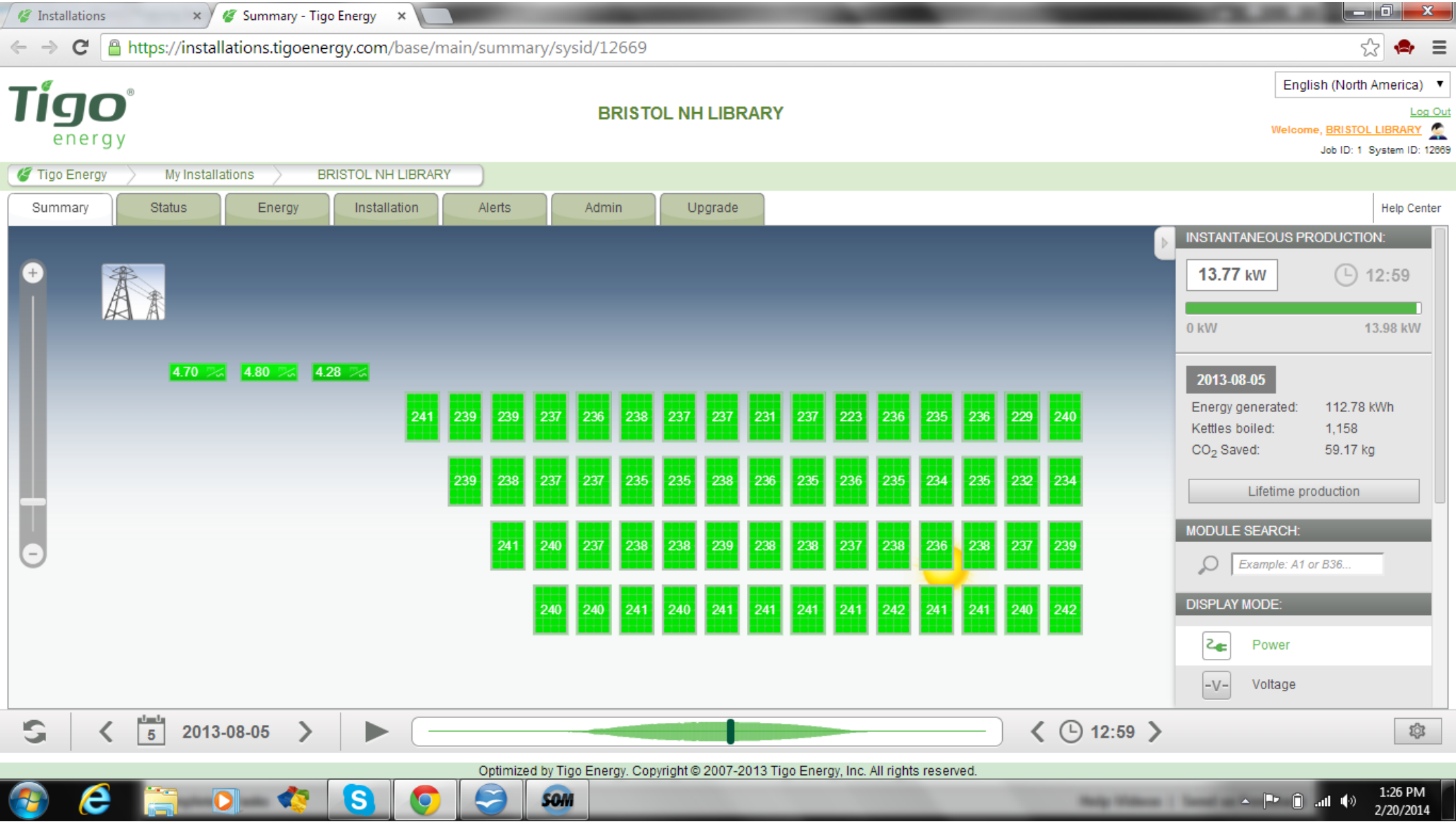
Bristol Library and solar installation on South side

Bristol Library Solar Array Facts

Large “Air Conditioning” Load -15.3 kW

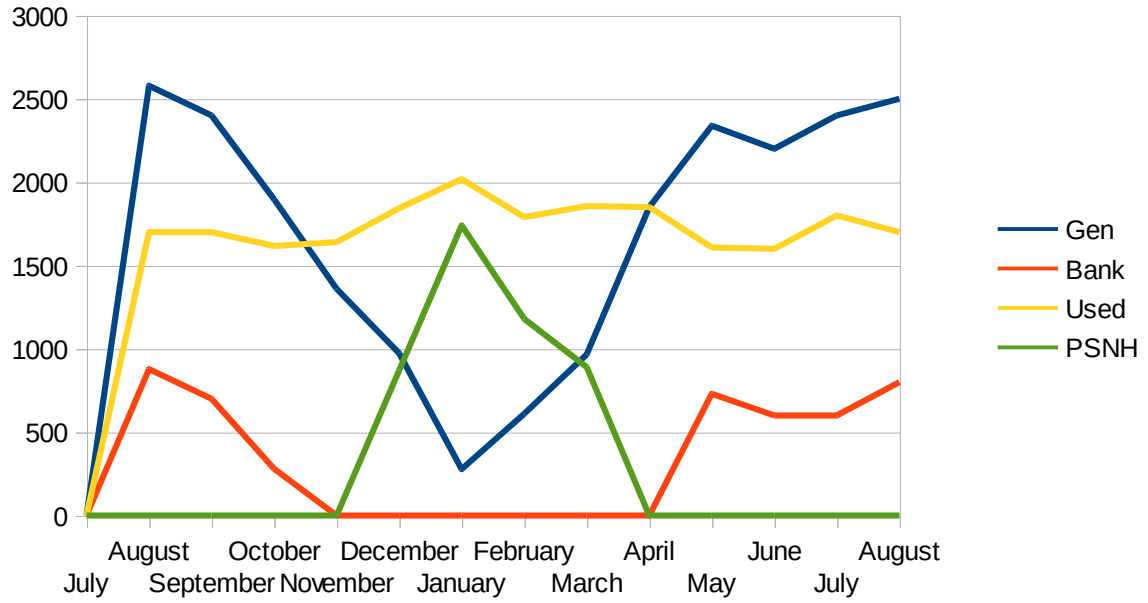
- 58 Solar World panels each at 265 watts
- 58 Tigo 'optimizers' and management system
- 3 Power One 'Aurora' inverters
  - 2 strings per inverter (5 with 10 panels, 1 with 8)
- Lowest price competition against specification
- Contractors: 7 interested; 4 bidders-$3.09/watt
- Commissioned July 26th 2013
- Funded at $36K (after $12K PUC rebate) by the Library Trustees.

Bristol Configuration from Tigo's web site Summary page



Results July 2013 to May 2014

Projections for June through August



Notes

July through September 2013 no PSNH billing, no Banking.

Winter PSNH use greater then generated

March excess generation comes back to start banking kwhs for next winter's need

Extrapolations

Today 3, 345 watt panels, produce ~1kw in 50 sq ft.
2900 panels produce 1mw on 50k sq ft, less than 2 acres of land e.g. at W&S sewer facilities.

1megawatt array produces 1300+ megawatthours/yr
This meets all the small town (pop 5K +/-) municipal needs; Water & Sewer, Fire, Police, Administration, road maintenance, library and schools

This could be deployed in a ground array for $4/watt,

This is less then $4M per small town 1mw array

What NH could achieve with small town 1 megawatt (1mw) arrays

NH's 2012 Direct Use elect power was 95,000mwh/yr. Source; US EIA 2012 Report, issued May 1, 2014.

25,1mw solar array will produce 32,500 mwh/yr (34%)

This would readily achieve the 2025 renewable energy goals using class 2 solar technologies

25 small towns could be producing all the municipal electricity they need, from town deployed grid connected arrays, offsetting $100K+/yr in power cost, allowing for property tax relief.

Each array could be installed using local labor and American made materials.

Funding Source for 25 1mw arrays

Alternative-energy Compliance Payments (ACP) from utilities are providing $24M in 2014,

This will escalate each year for next 10 years

ACP funds will generate $250+ M by 2025.

$100M funded from APC funds over the next 10 years would completely pay for these arrays.

($76M would fund 19 arrays for 25% solar RE)

Concluding comments

Right Sized Solar PV is right for New Hampshire's Strategic Energy Plan

Using the ACP funds for their dedicated purpose, would achieve our NH's 2025 Renewable Energy goals.

- 25 towns would be free of municipal electrical power costs.
- Large towns, (population10K+) could also be funded using the remainder of ACP funds.
- Installation cost:- ~$4/watt, ground mounted arrays with local labor and American made materials.